OCEANAIRE
"providing a better climate.....anywhere"

PAC series

Portable Air-Cooled Spot Cooler

ENGINEERING, INSTALLATION AND SERVICE MANUAL

AIR COOLED

PAC60

PAC12

c UL us

MADE IN THE USA

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FORWARD

This manual provides the user with basic details for the installation and operation of the Oceanaire PAC series spot cooler. It is recommended to read and fully understand the instructions outlined within this manual, before operating the unit.

As with all commercial air conditioning equipment, it is recommended to have the PAC units sized and installed by a licensed specifying engineer and contractor, in accordance with all local and state codes. The length of service received can be extended by following the installation and preventive maintenance instructions.

NOTICE

In our ongoing process of continuous improvement, the items and procedures described in this manual are subject to change without notice. Please note model and serial number of the PAC unit when contacting the factory.

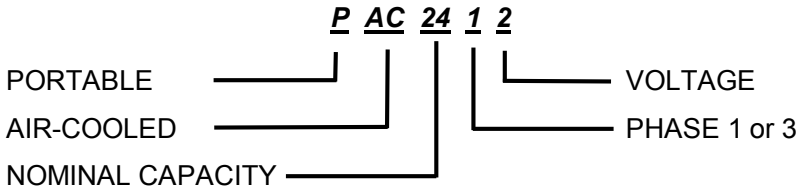
GENERAL DESCRIPTION

The Oceanaire PAC series is a portable air-cooled spot cooler designed for permanent or temporary cooling applications. The entire air conditioning unit has been built in an attractive sheet metal cabinet, equipped with heavy -duty casters for mobility. All PAC models come with a 10-foot power cord for electrical connection and added mobility in service. These spot-coolers are designed to direct air to specific areas or objects through a discharge grill located on the upper-front of the unit, while rejecting heat from the top of the unit. The PAC models range in cooling capacities from 12,000 BTU/ HR to 60,050 BTU/HR to satisfy most space cooling requirements.

The PAC series is a self-contained unit with the entire cooling system, evaporator and condenser fan motors and electrical components neatly arranged in a gray polyester powder coated metal cabinet. When connect- ed to the proper source of electrical power, a 24-volt thermostat controls the PAC unit to provide the desired level of comfort and cooling.

A wide variety of accessories and factory installed options are available for the PAC series allowing for improved performance and versatility.

NOMENCLATURE



CAPACITY RATING

NOMINAL CAPACITY	12.....12,000 BTU/HR
	18.....18,000 BTU/HR
	24.....24,000 BTU/HR
	36.....36,000 BTU/HR
	60……...60,000 BTU/HR

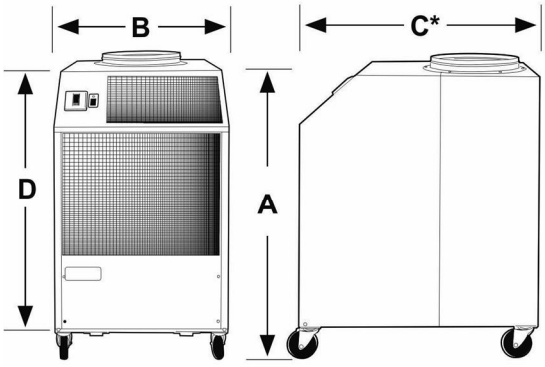
WARRANTY CARD

It is important that the warranty card be filled out completely and returned to the factory within fourteen (14) days of installation of the unit in order to receive the benefits of the warranty.

SPECIFICATIONS PAC

MODEL: PAC	1211	1811	2412	3612	3632	3634	6012	6032	6034
Cooling Capacity [1]	11,800	16,800	24,020	36,050	36,050	36,050	60,050	60,050	60,050
Voltage (V/Phase) at 60Hz	115/1		208-230/1	208-230/1	208-230/3	460/3	208-230/1	208-230/3	460/3
Amps [6]	10.4	14.1	14.9	18.1	17.2	8.7	32.0	20.4	14.8
Watts [6]	1180	1670	2700	3620	3620	3620	6000	6000	6000
In Rush Current (Amps)	77.5	100.5	90	140	122	122	169	140	140
Plug Type	5-15P	5-20P	6-20P	6-30P	L15-30P	L16-20P	6-50P	L15-30P	L16-20P
EER [3]	10.0	10.0	8.9	10.0	10.0	10.0	10.0	10.0	10.0
Compressor HP	1	1 1/2	2	3	3	3	5	5	5
Compressor RLA	9.5	12.3	10.5	13.6	8.8	5.0	27.6	18.1	9.0
Compressor LRA	50	63	48	83	77	35	158	137	62
Evap CFM [4]	400	600	810	1200	1200	1200	1950	1950	1950
Evap Motor HP	1/8	1/8	1/3	1/3	1/3	1/3	1	1	1
Evap Motor Watts	180	210	330	375	375	375	550	550	550
Condenser CFM	580	930	1010	1390	1390	1390	2200	2200	2200
Condenser Motor HP	1/8	1/8	1/3	1	1	1	1	1	1
Condenser Motor Watts	200	280	350	460	460	460	750	750	750
Condensate	5 Gallon Condensate Tank - STANDARD (Pump Optional)						Pump -STANDARD (20 ft. Lift)		
Sound Level [5]	54	60	65	69			78		
R-410A Charge Oz.	18	40	37	66			80		
(A) Height with Casters (in.)	36 1/2	45 1/2		50-1/4			52 1/4		
(B) Width (in.)	20	24		28					
(C) Depth (in.)	25	30		35			39		
(D) Height w/o Casters (in.)	32 1/2	40 1/2		45			46		
Net Weight (lb.)	180	260	260	365		380	485	485	515
Shipping Weight (lb.)	200	285	285	405		420	525	525	555
Shipping Volume (cu. ft.)	19	28		40			48		

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



*** Condenser Return Air Plenums**
2DCP-1 and 2DCP-2 add 13 inches to Dimension "C"
DCP-5 adds 17 inches to Dimension "C"

1. Cooling Capacity is total BTUH at 80ºDB/67ºWB return air, 95ºF Outdoor at high fan speed
2. Time Delay fuses/circuit breakers are recommended
3. EER is determined at high fan speed, with condenser discharge air ducted into another area
4. CFM with free discharge
5. Sound Pressure, dB at 5 feet, commercial operation
6. Amps & Watts at 208 Volts

MADE IN THE USA

Ambient Operating Range 65º to 105º

May operate down to 55º if equipped with Hot Gas Bypass (Factory installed)

AVAILABLE OPTIONS - SPECIAL ORDER ONLY - CONSULT FACTORY**

Hot Gas Bypass	**Coated Coils**
High Performance Blowers	**Special Filters**
50 Hz Models	**Special Voltages**

**** some options are available as Non-UL Listed Product, Only**

NOT APPROVED FOR OUTDOOR USE

c UL us

AIR COOLED

STANDARD FEATURES

CABINET

The PAC series cabinet is constructed of 18 gauge steel with a gray polyester powder coated finish that will compliment any decor. The entire cabinet is insulated with a sound-absorbing insulation for cool, quiet comfort. All units come equipped with handles and swivel casters for portability and convenient set-up.

ELECTRONIC THERMOSTAT

All PAC units are equipped with a non-programmable electronic thermostat. When power is connected to the unit, the thermostat will control the unit to cool a space to the desired temperature. The thermostat is also capable of controlling the fan to operate automatically (when needed) or continuously. To protect the compressor from short-cycling, there is a built-in, 4-minute time delay in the thermostat.

FAN SPEED CONTROL

A two position rocker switch, located next to the thermostat, provides the user with the option of running the evaporator fan in high-speed or low-speed.

CONDENSATE RESERVOIR/PUMP

PAC series units come equipped with a means for handling the condensate generated during the cooling process. All models **except the 5-ton models** come equipped with a Condensate Reservoir Tank, that captures the condensate from cooling. The tank can then be easily removed from the unit and emptied as required.

The 5-ton PAC models come equipped with an Automatic Condensate Pump that disposes of the condensate. The pump comes with a 25 foot long vinyl hose that allows for the disposal of the condensate water to a drain. The automatic pump is capable of a 20ft lift, to handle just about any installation requirement.

CONDENSATE ALARM LIGHT

On the front of all PAC models, there is a Condensate Alarm Light (RED) located near the thermostat. For models less than 5-tons, the light indicates that the condensate tank is full and needs to be emptied. In the 5-ton PAC units (model PAC60) the light indicates a condensate pump over-flow condition where the pump is either disabled, or incapable of rejecting the condensate water, and must be serviced.

FILTERS

All PAC series units are equipped with washable filters at the air intakes. 1/8” mesh air filters located behind the evaporator return air grill serve to filter the air before it is cooled. A 1/2” aluminum mesh filter serves to protect the condenser coil from dust build-up. Both filters can be easily removed and cleaned.

HIGH PRESSURE SAFETY SWITCH

Located on the back of the PAC series unit is a manual re-set high pressure switch, used for the protection of the compressor. If the condensing pressure exceeds the limit setting, the cut-out shuts down the compressor, while the evaporator fan remains running. The compressor can be re-started, once the condensing pressure has lowered, by depressing the “RESET” button.

POWER CORDS

All PAC series units come with power cords, convenient connection and portability. All units except the 5-ton models and 3-phase models, are equipped with LCDI for added safety devices.

APPLICATIONS

SPOT COOLER

The PAC series can be used in an open environment to cool specific objects or "spots". Spot Cooling is a convenient and economical way to provide air conditioning where cooling the entire space is impractical. Cool air is discharged from the unit and is directed where it is needed. Nozzle kits can be used to improve direction of the cooling airflow.

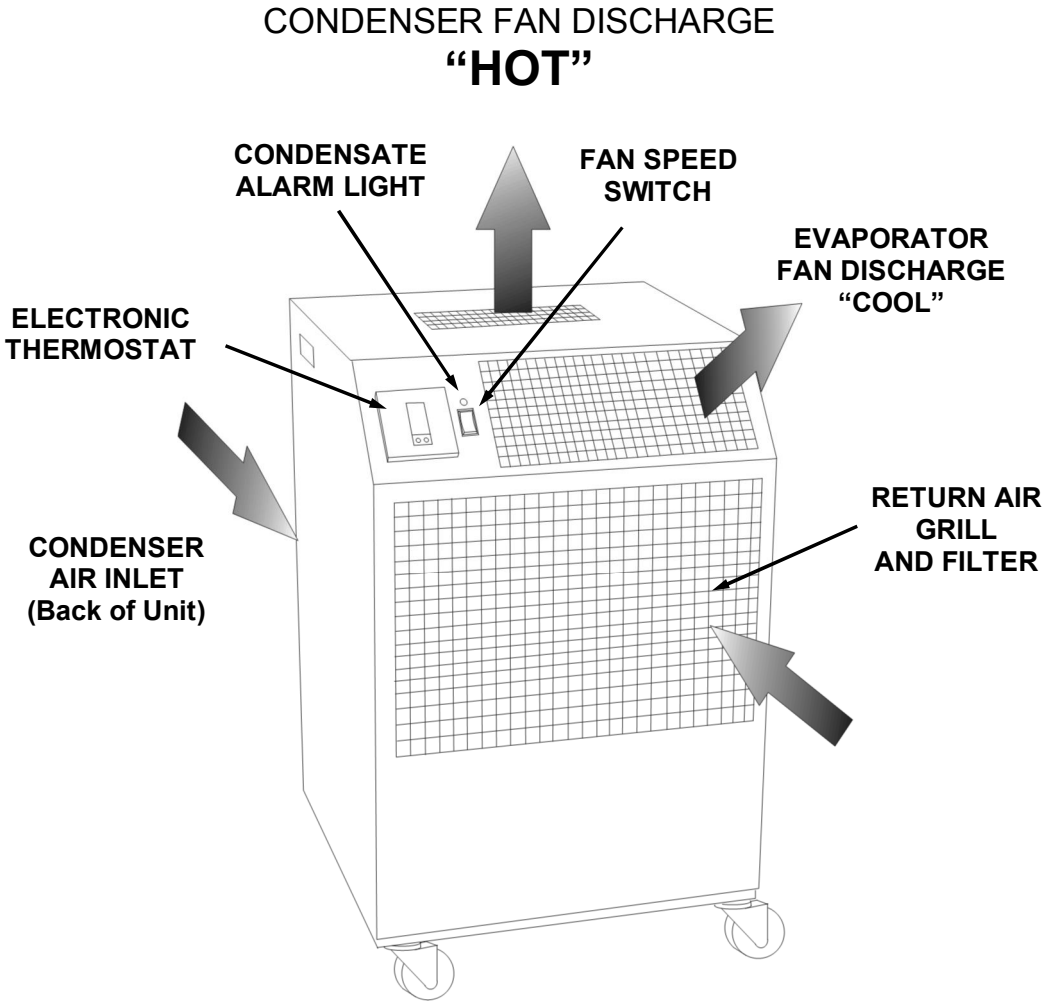
AREA COOLER

When the PAC series is installed in an area that is not totally enclosed, the condenser hot air exhaust duct directs condenser air out of the area, allowing the evaporator air to cool the specific space.

ROOM AIR CONDITIONER

When ducted, the OceanAire PAC series can be used as a room air conditioner to cool an enclosed space. Using the condenser return air plenum (DCP), ceiling discharge kit (CK) and ceiling panel kits (CK-PL) accessories, the PAC series can operate as a room air conditioner with the condenser air isolated form the conditioned space.

PAC SERIES—OPERATION / DESCRIPTION



PAC SERIES—FRONT VIEW

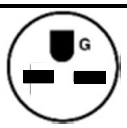
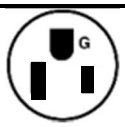
SERVICE CORD

All PAC series units are equipped with the standard ten foot long service cord with plug configurations and receptacle requirements as shown in this chart. PAC1211, PAC1811, PAC2412 and PAC3612 units come with **LCDI** (Leakage Current Detection & Interruption) devices that serve as a means of electrical protection.

CAUTION—DO NOT USE THE LCDI AS AN ON/OFF SWITCH FOR THE UNIT

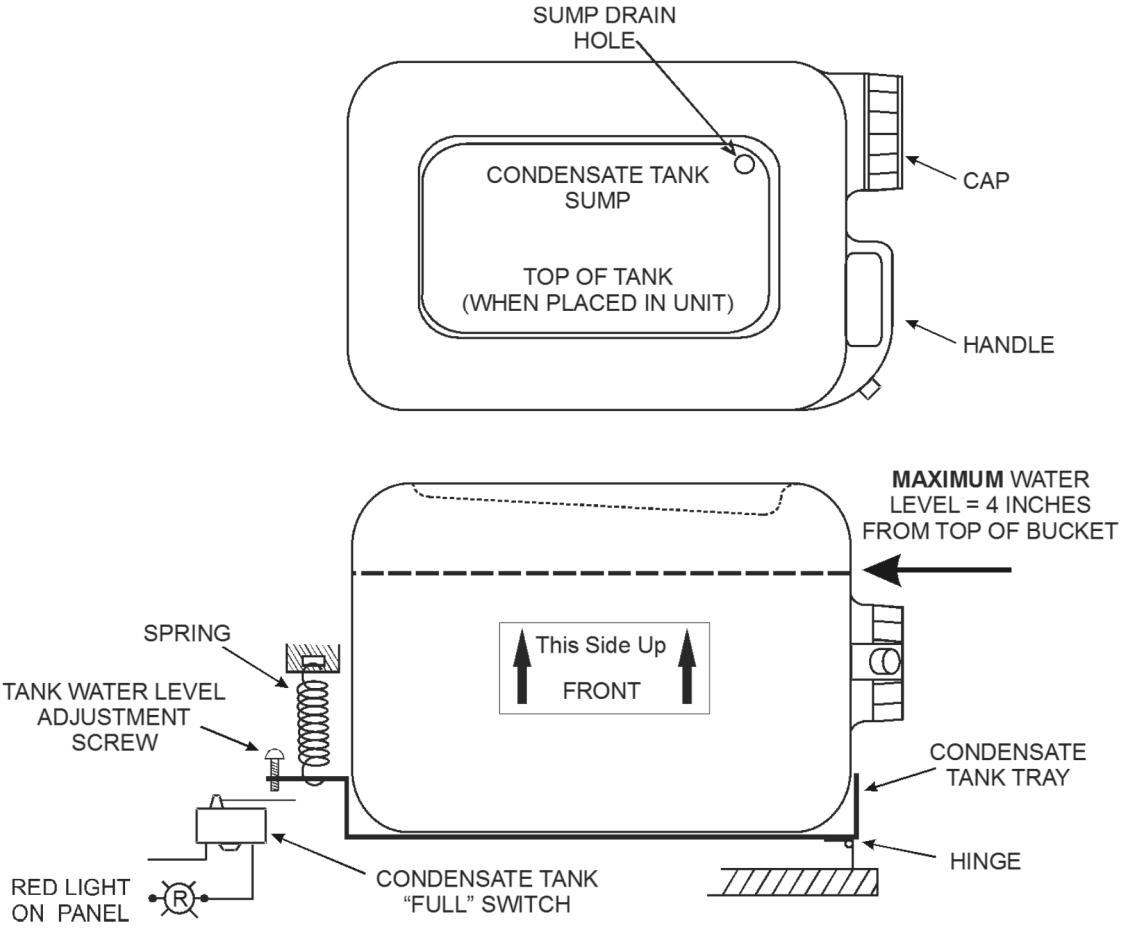
All 3-phase models are equipped with locking plugs for added connection reliability. Refer to the chart below for plug and receptacle details for all PAC models.

A DAMAGED LCDI POWER SUPPLY CORD MUST BE REPLACED WITH A NEW POWER SUPPLY CORD OBTAINED FROM OCEANAIRE, AND NOT REPAIRED

UNIT/MODEL	PLUG CONFIGURATION	RECEPTACLE
115 VOLT PAC1211	15A-125 VOLT NEMA 5-15P	NEMA-5-15R
115 VOLT PAC1811	20A-125 VOLT NEMA 5-20P	NEMA 5-20R
208-230 VOLT SINGLE PHASE PAC2412	20A-250 VOLT NEMA 6-20P	NEMA 6-20R
208-230 VOLT SINGLE PHASE PAC3612	 30A-250 VOLT NEMA 6-30P	NEMA 6-30R
208-230 VOLT SINGLE PHASE PAC6012	 50A-250 VOLT NEMA 6-50P	NEMA 6-50R
208-230 VOLT 3-PHASE PAC3632 PAC6032	30A-250 VOLT NEMA L15-30P	NEMA L15-30R
460 VOLT 3-PHASE PAC3634 PAC6034	20A-460 VOLT NEMA L16-20P	NEMA L16-20R

CONDENSATE RESERVOIR TANK

For PAC series Models PAC12, PAC18, PAC24 and PAC36, a 5-gallon polyethylene tank is provided to collect condensate. The tank is located in the lower, front section of the unit, and can be accessed through the condensate tank door. A high water level cut-out switch is used to stop the compressor and condenser fan automatically when the tank's pre-set water level has been reached. The evaporator fan will continue to run, circulating air, and the RED CONDENSATE ALARM LIGHT WITH TURN ON.



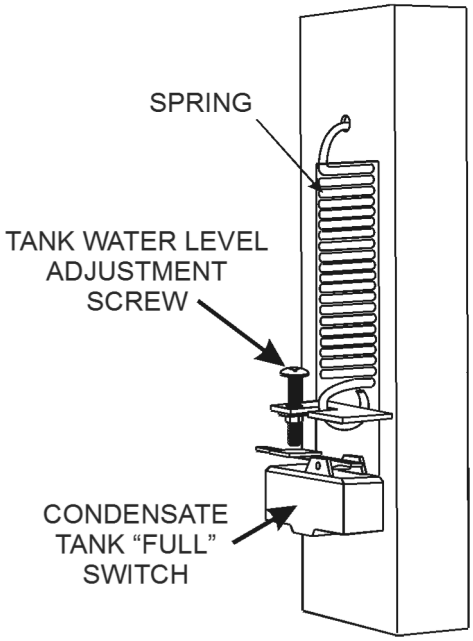
TANK LEVEL ADJUSTMENT INSTRUCTIONS

An adjustment screw is provided to vary the cut-off of the tank full switch. If a lighter (less weight) level of water is desired, turn the adjusting screw clockwise. Do not exceed 6 full turns counter-clockwise.

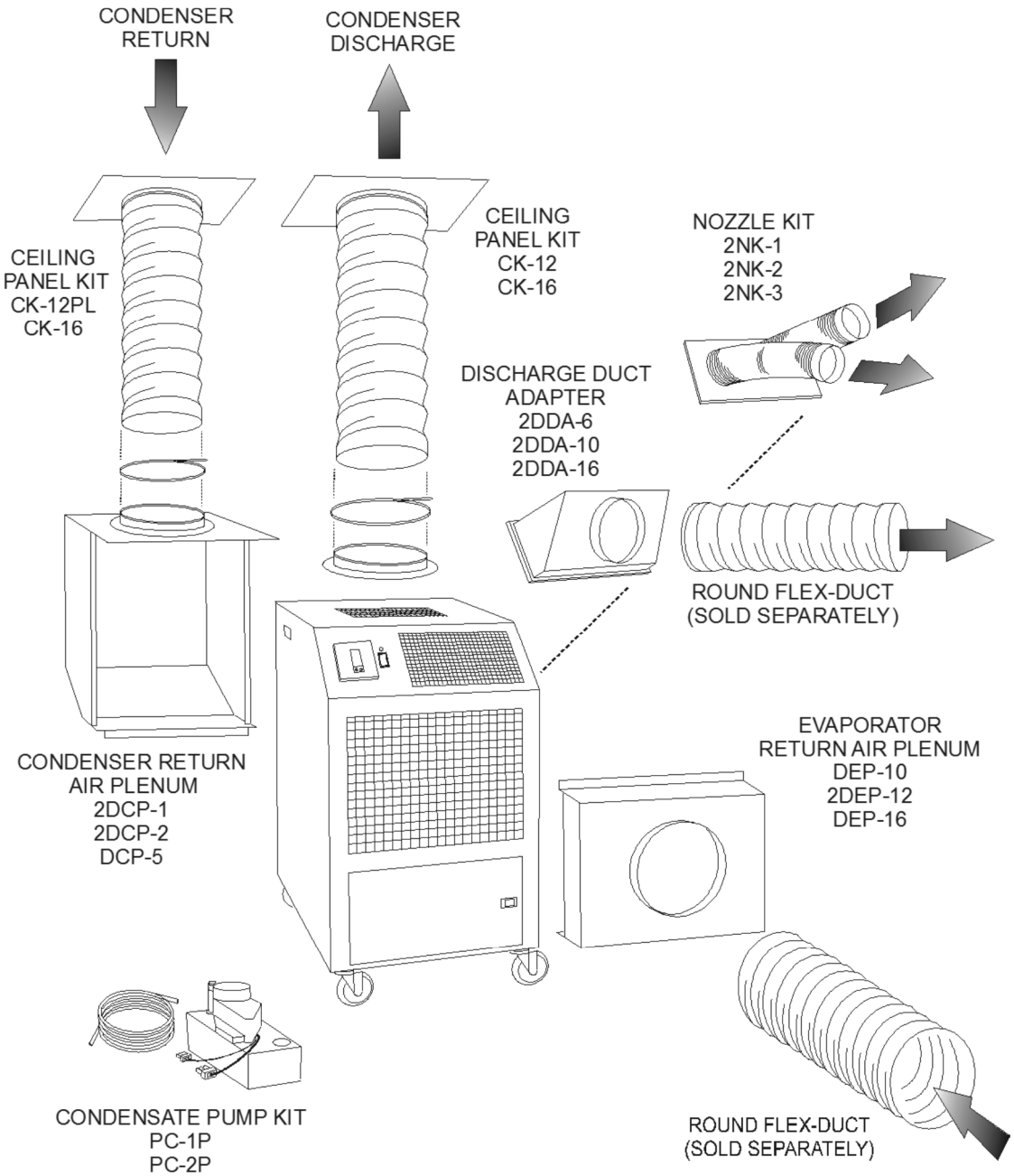
CAUTION

TURN UNIT OFF *BEFORE REMOVING TANK TO EMPTY CONDENSATE AND ADJUSTING THE SET SCREW*

Turn screw clockwise to lower water level. Less water makes tank lighter and easier to remove.



ACCESSORIES


CONDENSER RETURN
CONDENSER DISCHARGE
CEILING PANEL KIT CK-12PL CK-16
CEILING PANEL KIT CK-12 CK-16
NOZZLE KIT 2NK-1 2NK-2 2NK-3
DISCHARGE DUCT ADAPTER 2DDA-6 2DDA-10 2DDA-16
ROUND FLEX-DUCT (SOLD SEPARATELY)
CONDENSER RETURN AIR PLENUM 2DCP-1 2DCP-2 DCP-5
EVAPORATOR RETURN AIR PLENUM DEP-10 2DEP-12 DEP-16
CONDENSATE PUMP KIT PC-1P PC-2P
ROUND FLEX-DUCT (SOLD SEPARATELY)

Accessory Diagram - PAC MODELS

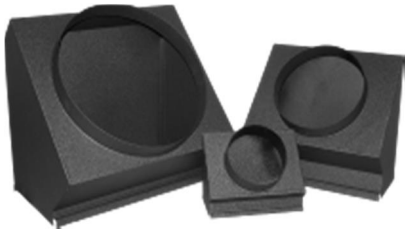
PAC SERIES ACCESSORIES

NOZZLE KIT

2NK-1	(2 X 4-Inch)	PAC12
2NK-2	(2 X 6-Inch)	PAC18, 24
2NK-3	(2 X 8-Inch)	PAC36, 60

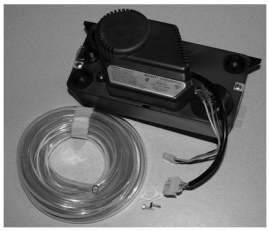
EVAPORATOR RETURN AIR PLENUM

DEP-10	(10-Inch Round)	PAC12
2DEP-12	(12-Inch Round)	PAC18, 24
DEP-16	(16-Inch Round)	PAC36, 60



DISCHARGE DUCT ADAPTER

2DDA-6	(6-Inch Round)	PAC12
2DDA-10	(10-Inch Round)	PAC18, 24
2DDA-16	(16-Inch Round)	PAC36, 60



CONDENSATE PUMP KIT *

PC-1P	115V Models
PC-2P	230V Models

* Not Required for PAC60's

CEILING PANEL KIT

CK-12	PAC12, 18, 24
CK-16	PAC36, 60
CK-12PL	CK-12 without Duct Flange
CKP-12	2 X 2 Ceiling Panel w/12-Inch Dia. Flange
CKP-16	2 X 2 Ceiling Panel w/16-Inch Dia. Flange

DUCT FLANGE

DF-12	12-Inch Duct Flange
DF-16	16-Inch Duct Flange

CONDENSER RETURN AIR PLENUM

2DPC-1	(12-Inch Round)	PAC12
2DCP-2	(12-inch Round)	PAC18, 24
DCP-5	(16-Inch Round)	PAC36, 60

ACCESSORIES

CEILING PANEL DUCT KIT, CK-12 and CK-16

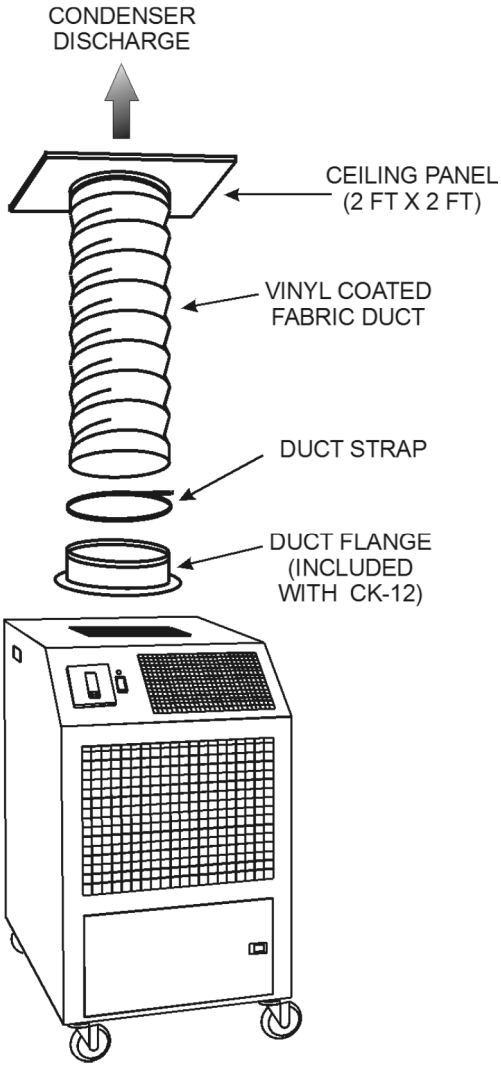
A ceiling panel kit is available for discharging the condenser air above a drop ceiling. The ceiling panel duct kits are furnished with a white vinyl coated flexible duct that allows for convenient installation. A 2ft X 2ft ceiling duct panel is included to replace a 2ft X 2ft drop-ceiling panel where the connection is desired.

The CK-12 is available for the PAC12, PAC18 and PAC24 Models. The CK-12 consists of a 2 X 2 flanged ceiling panel, 8 feet of flexible duct, and a 12-inch duct flange that attaches to the condenser air discharge opening on the top of the unit.

The CK-16 (for the PAC36 and PAC60 Models) consists of a 2 x 2 flanged ceiling panel and a 16 -inch flexible duct.

Note—Drop ceiling spaces should be vented or large enough to handle the warm condenser air. Check local codes to assure compliance.

If longer runs of duct are required, the table below lists maximum duct run with no 90° elbows. For every 90° bend, subtract 6 feet from the run.



Ceiling Kit Model	Flexible Duct Diameter X Length	Fits PAC12	Fits PAC18	Fits PAC24	Fits PAC36	Fits PAC60
CK-12 Size/Fits	12-Inch X 8 feet	✓	✓	✓	No	No
CK-16 Size/Fits	16-Inch X 8 feet	No	No	No	✓	✓
Maximum Approx Equivalent Feet (ESP)		25 (.20)	50 (.25)	50 (.25)	50 (.25)	100 (.50)

DUCT FLANGE, DF-12 and DF-16

The optional duct flange allows for round, flexible ducting to be attached to the PAC series condenser discharge. DF-12 (12-inch diameter) fits PAC12, PAC18 and PAC24. The DF-16 (16-inch diameter) fits PAC36 and PAC60.

DUCT FLANGE

ACCESSORIES

DISCHARGE AIR NOZZLE KIT ASSEMBLY (2NK)

Nozzle Kits

The optional discharge nozzle kits are used to direct the conditioned air to a specific target area. By concentrating the airflow, the nozzles increase the air velocity towards production lines to cool personnel or equipment. In server rooms, the nozzles can be used to induce airflow through the rack to remove the hot air from the area of the equipment.

2NK-1 for model PAC12, (2) 4-inch diameter nozzles with an approximate compressed length of 15 inches. The approximate extended length is 21 inches.

2NK-2 for models PAC18, PAC24 (2) 6-inch diameter nozzles with an approximate compressed length of 22 inches. The approximate extended length is 32 inches.

2NK-3 for models PAC36 and PAC60, (2) 8-inch diameter nozzles with an approximate compressed length of 20 inches. The extended length is approximately 29 inches.

The nozzle kits come pre-assembled with the nozzles secured to a mounting plate and with edge guards. By removing the discharge grill, one can insert the nozzle kit into the opening without the use of tools.

CONDENSATE PUMP KIT: PC-1P and PC-2P

A plug-in condensate pump kit is available for applications where emptying the 5 gallon condensate tank is not desired. The pump kit consists of a condensate pump with mounting hardware and electrical connections, along with the tubing required for the drain and discharge of the condensate water.

The condensate pump provides for the automatic removal of condensate water during the cooling process. The pump is capable of pumping against a 20 foot head, allowing for the routing of the drain line above the drop-ceiling to a nearby drain. The pump is controlled by an internal float-switch which turns the pump on and off automatically. The pump is also equipped with a condensate over-flow safety switch that will shut down the unit compressor when the pump is not working properly.

PARTS LIST

(1) Condensate Pump with mounting hardware
(1) 3/8-inch drain hose, 25 ft
(2) Mounting screws
(1) Drain hose — black corrugated
(2) Hose clamps

Kit	Voltage
PC-1P	115V
PC-2P	208-230V

Plug-in kit is for models with serial number G4 or higher (Oct. 2003 or later).

ACCESSORIES

CONDENSER RETURN AIR PLENUM, DCP/2DCP

Condenser return air plenums are available for installations where it is required to duct air to the inlet of the condenser. The plenum easily attaches with one screw to the back of the unit, and is provided with flange(s) for connecting 12-inch flexible ducting. A condenser return air plenum can substantially reduce air noise and allows the unit to operate without drawing condenser air from the conditioned space. Refer to the table below for configuration and application information.

NOTE — When installing the condenser return air plenum with the ceiling panel kits, allow for a minimum separation distance of 2 feet between the unit discharge duct and the return air duct(s). It is also recommended to direct the condenser discharge air away from the condenser return air ducts.

2DCP-1, 2DCP-2 and DCP-5

To estimate the "equivalent feet" of condenser duct, add the length of the condenser intake duct run and the length of the condenser discharge duct run, and add 6 equivalent feet per bend in the duct. Make sure that you do not exceed the rated E.S.P. to avoid shut down due to the high pressure cut-out

Plenum Kit	Duct/Flange	PAC12	PAC18	PAC24	PAC36	PAC60
2DCP-1	12-Inch	✓				
2DCP-2	12-Inch		✓	✓		
DCP-5	16-Inch				✓	✓
Maximum Approximate Equivalent Feet		25	50	50	50	100
Estimated External Static Pressure		(.20)	(.25)	(.25)	(.25)	(.50)

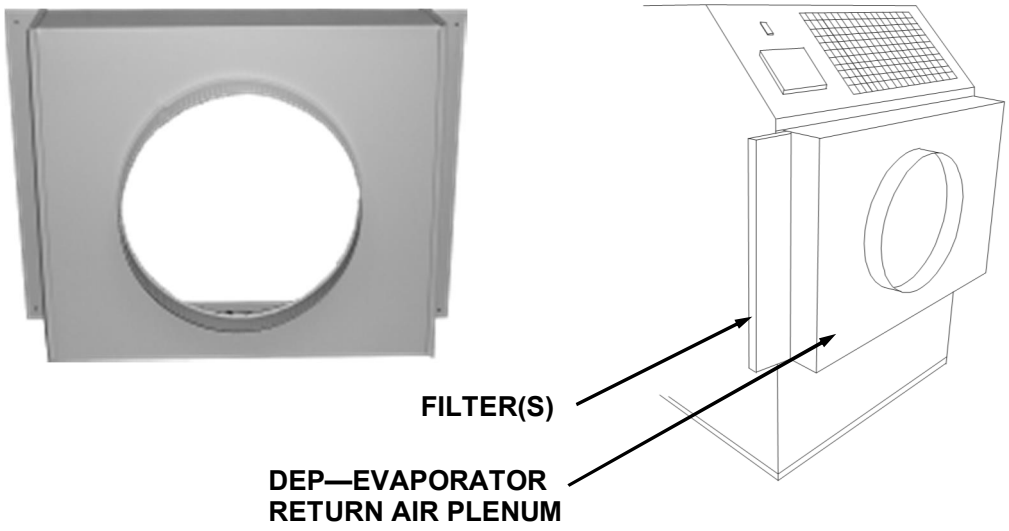
ACCESSORIES

EVAPORATOR RETURN AIR PLENUM, DEP/2DEP

Evaporator return air plenums are available for installations where it is required to duct air to the inlet of the evaporator. The evaporator return air plenums allow the user to connect round ducts (flexible or rigid) to the return air intake to reduce air noise and increase the number of options for solving difficult cooling problems. The plenum attaches to the front of the unit, replacing the return air grill. Refer to the table below for configuration and application information

DEP-10 for PAC12 transitions the return air opening to 10-inch round duct.
2DEP-12 for PAC18 and PAC24 transitions the return opening to a 12inch round duct.
DEP-16 for PAC36 and PAC60 transitions the return opening to a16-inch round duct.

NOTE—When a DEP is installed, it is recommended to set the evaporator blower speed to high, to avoid evaporator freeze-up.



Plenum Kit Duct/Flange	PAC12	PAC18	PAC24	PAC36	PAC60	FILTERS
DEP-10 10 inch	✓					(1) 10”X20”X1”
2DEP-12 12 inch		✓	✓			(1) 16”X24”X1”
DEP-16 16 inch				✓	✓	(1) 12”X30”X1” (1)15”X30”X1”
Maximum Equivalent Feet	25	50	50	50	100	
Est. External Static Pressure	(.20)	(.25)	(.25)	(.25)	(.50)	

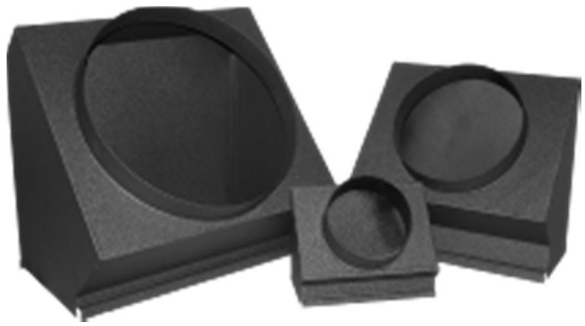
ACCESSORIES

Discharge Duct Adapter, 2DDA

Discharge duct adapters are available for applications where ducted evaporator discharge is required. The adapters can be easily installed on the unit without fasteners, and be installed for either vertical or horizontal ducting. The standard discharge grill is removed and the DDA is attached in the grill opening.

2DDA-6 for PAC1211, converts the evaporator discharge to a 6-inch diameter round duct.
2DDA-10 for PAC1811 and PAC2412, converts the evaporator to a 10-inch diameter round duct.
2DDA-16 for PAC36 and PAC60 models, converts the evaporator discharge to a 16-inch round duct.

When used in conjunction with the evaporator return air plenum, DEP/2DEP, the unit can provide closed-loop cooling to and from a given space without the influence of any outside air.



Adapter Model	Round Duct Size	PAC12	PAC18	PAC24	PAC36	PAC60
2DDA-6	6-inch	✓				
2DDA-10	10-inch		✓	✓		
2DDA-16	16-inch				✓	✓
Maximum Equivalent Feet		25	50	50	50	100
Maximum E.S.P		(.15)	(.25)	(.25)	(.25)	(.50)

INSTALLATION INSTRUCTIONS

RECEIVING—INSPECTION:

Upon receiving your PAC series unit, inspect the packaging for any damage. All units are shipped on a skid, and packaged in a triple-wall carton for added protection. In shipment, some wear may occur on the packaging. If the packaging is heavily damaged or broken, file a claim with the freight company immediately. Carefully unpack the unit and remove all wrapping materials. Save all documentation and fill out the Warranty Card and mail it to Oceanaire.

BEFORE INSTALLING

Check the air conditioner/spot cooler for any damage. All Oceanaire products are thoroughly inspected at the factory and carefully packaged. If any damage is evident, file a claim with the delivering carrier immediately.

ELECTRICAL REQUIREMENTS

Check the nameplate located on the back of the unit to make certain that the proper power is available for the unit. Refer to "Specifications" section for voltage and amperage requirements. For proper NEMA receptacles, refer to "Electrical service plug configuration". When using extension cords, use the properly sized cord as specified, and check cord voltage to the unit.

TIME DELAY FUSES/CIRCUIT BREAKERS ARE RECOMMENDED

WARNING—OPERATING THE UNIT ON IMPROPER VOLTAGE WILL VOID THE WARRANTY

ACCESSORIES

Verify that all accessories are correct for the model, and that they installed in accordance with all instructions.

START-UP

Install the unit in accordance with all local and state building codes, and install all accessories. Allow for a clearance around the unit for future maintenance and/or service. Level unit and lock casters when available. Connect power and test the LCDI on the power cord (if available). Power up unit via thermostat and check for proper operation. Refer to Thermostat Operation for more details.

THERMOSTAT OPERATION

FAN

When the power is connected, the LCD screen on the thermostat will illuminate. Pressing the FAN button once will turn on the evaporator fan blower. To turn the blower off, push the FAN button once again.

COOLING MODE ✳

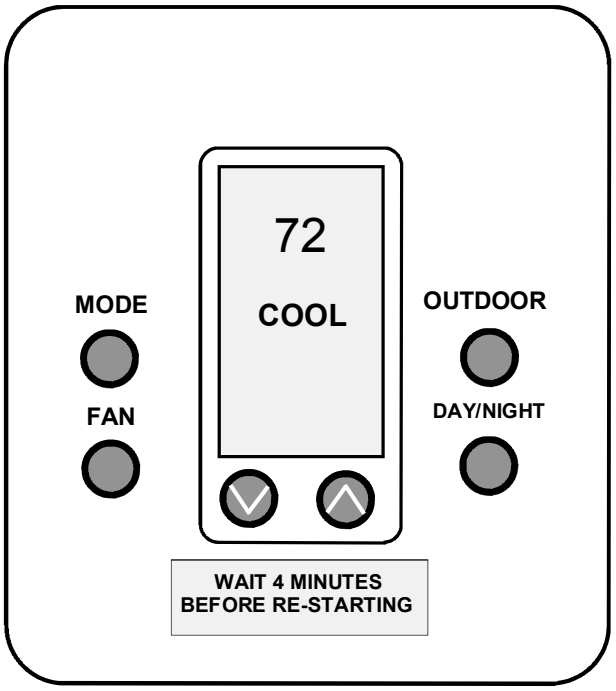
To operate unit for cooling, push MODE button to display COOL in the window.

Push down arrow button multiple times to lower set point to desired temperature.

The display will show the set-point temperature for 5 seconds. Then it will return to room temperature display.

After a slight pause, the fan motor and compressor will start, beginning the cooling cycle.

Remember, the set-point must be lower than the room temperature for the unit to start.



The OUTDOOR and DAY/NIGHT buttons are not used and do not effect unit operation.

This is a cooling only thermostat. Select the temperature you want by pressing the ▲ or ▼ buttons. The word COOL and the temperature set-point is displayed for 5 seconds.

To change display to Celsius, simultaneously press the ▲ and ▼ buttons. Press them again to change back to Fahrenheit.

No batteries are required. In the event of a power failure, when the power is restored the thermostat will continue operating as if the power had never been off.

Compressor short cycle protection is built-in to the thermostat. A 4-minute time delay will protect the unit.

REPLACEMENT PROCEDURE FOR PARTS

IT IS RECOMMENDED THAT ALL OCEANAIRE UNITS BE SERVICED BY A LICENSED TECHNICIAN

WARNING—TO AVOID INJURY, DISCONNECT UNIT POWER PRIOR TO SERVICING

A. FAN MOTORS

1. Remove cabinet's left-side panel (when looking at the front of the unit).
2. Evaporator fan motor—disconnect evaporator motor wires from evaporator fan contactor and fan speed rocker switch. Condenser fan motor—disconnect condenser motor wires from condenser fan contactor.
3. ***For all model sizes 12, 18 and 36*** remove the screws securing motors and inlet ring to blower housings (all screws are external and visible), and remove blower wheel-motor assembly. Remove the blower wheel set screw and disassemble the blower wheel from the motor shaft and remove the motor.
   For models size 60 loosen blower wheel shaft set screw, remove the screws securing the motor mount to the blower housing and then remove motor and mount. Remove the motor from the motor mount.
4. Install the new motor, reversing the removal procedure.

B. THERMOSTAT (NO BATTERIES REQUIRED)

1. Pull up from the bottom of the thermostat to remove it from the mounting sub-base, by gently prying up on the face plate in the slot at the base of the thermostat. Make sure small thermistor located in the bottom of the thermostat for temperature sensing is not bent or damaged.
2. To remove the thermostat sub-base, remove the 2 mounting screws and the 3 wires (red/yellow/green or red/white/black). Make sure the 3 wires do not fall into the cabinet. Install sub-base by reversing removal procedure.

C. TANK FULL LIGHT

1. To replace the Condensate Alarm Light on all models, disconnect the wires from the lamp and bend the tinnerman clip retaining light and pull out.
2. Install new light, reversing the procedure.

D. CONDENSATE PUMP (ON ALL 5-TON UNITS OR ON UNITS WHERE THE CONDENSATE PUMP KIT HAS BEEN INSTALLED)

1. Open condensate bucket access door located on lower right side panel and locate the condensate pump.
2. Remove brackets securing condensate pump in base pan, or condensate tank tray pan
3. Disconnect pump wire leads at Molex connectors. Remove retainer clamp and tubing.
4. Replace pump, install by reversing procedure.

E. HIGH PRESSURE SAFETY SWITCH

1. Remove cabinets left hand side panel, or right rear side panel of size 60 models.
2. Remove flare nut that secures capillary to the refrigeration system high pressure side. A Schrader valve is located in the discharge port, and allows removal without dumping the refrigerant charge.
3. Remove two screws that retain high pressure switch.
4. Disconnect wire leads from compressor contactor and condensate pump safety switch.
5. Install new High Pressure Control, reversing the procedure.

To gain access to compressor and compressor run capacitor, remove left hand side panel.

TROUBLESHOOTING GUIDE

The following steps and procedures are recommended for correcting the problems indicated. In the event that the problem can not be corrected, service may be required.

SERVICE SHOULD BE PERFORMED BY A QUALIFIED AIR CONDITIONING SERVICE TECHNICIAN

PROBLEM: UNIT DOES NOT POWER UP

CAUSE: Power interruption

REMEDY: Check LCDI (on models with LCDI), and reset LCDI. Check external power supply making sure that the disconnect is ON. Check for blown fuses or tripped circuit breakers. Reset or replace if needed.

PROBLEM: NO DISPLAY ON THERMOSTAT

CAUSE: Faulty thermostat or faulty transformer

REMEDY: Thermostat may be defective...remove and replace. Transformer may be defective...remove and replace.

PROBLEM: EVAPORATOR FAN RUNS BUT COMPRESSOR AND CONDENSER FAN DO NOT START

CAUSE: Thermostat — setting may be too high.
REMEDY: Make sure set-point is lower than room temperature. You should see a snowflake "✻" designating that the thermostat is calling for cooling.

Note—there is a 4 minute time delay for the compressor

CAUSE: Thermostat—Loose wiring
REMEDY: Examine the control unit for loose wires. Tighten any loose connections.

CAUSE: Condensate Alarm—Check for Condensate Alarm Light.
REMEDY: Check condensate tank and empty tank or check condensate pump and make sure pump is working properly and that there is no kink in the drain line from the pump.

CAUSE: High Pressure Cut-out—Check High Pressure Cut-out Switch.
REMEDY: Press Reset and clear away any obstructions to the condenser intake or condenser discharge.

CAUSE: Low Voltage — Check power supply for voltage outside the range of 106-126 volts on the 115 Volt unit and 187-253 Volts on the 208/230 Volt unit.
REMEDY: Have power checked by electrician and repaired.

CAUSE: Compressor contactor open or burned.
REMEDY: Replace contactor.

PREVENTIVE MAINTENANCE

PAC series Spot Coolers are designed to last a long time and to give maximum performance and reliability with minimum maintenance. To prolong the life of the unit, regular maintenance must be performed as specified below:

BLOWER MOTORS

The motors on all units have permanently lubricated bearings. No oiling is necessary

FILTERS

A clogged filter will cause the unit to operate at greatly reduced efficiencies. We recommend that the filter be inspected on a regular bases every six weeks or more depending on the environment. The evaporator filter is located behind the return air grill and can be easily removed and cleaned. The condenser filter is located in the lower backside of the unit. Remove by loosening one screw holding retaining clip and pull out. The filters must be washed periodically as needed by placing them in a dishwasher or soaking them in a solution of warm water and detergent for 10 minutes. Then rinsing them clean with hot water and shaking excess moisture from filter.

CONDENSATE PUMP

Condensate pumps come standard on all size 60 models, and may be installed as options on size 12, 18, 24 and 36 models. When servicing pump follow these steps:

1. Make certain that the unit is disconnected from the power source before attempting to service or remove any component.

2. Be sure the floats move freely. Clean as necessary.

3. Remove the volute and check for obstructions. Clean as needed.

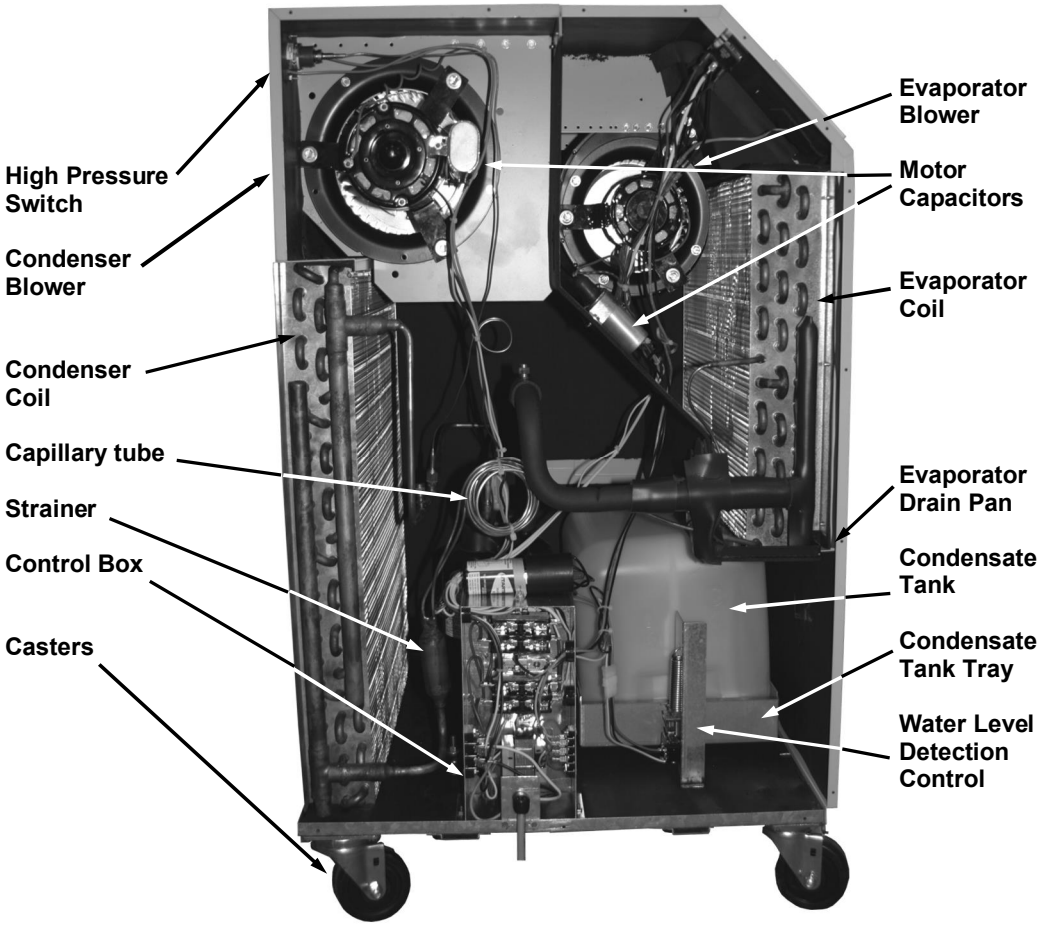
4. Clean the tank with warm water and mild soap when mineral deposits are visible.

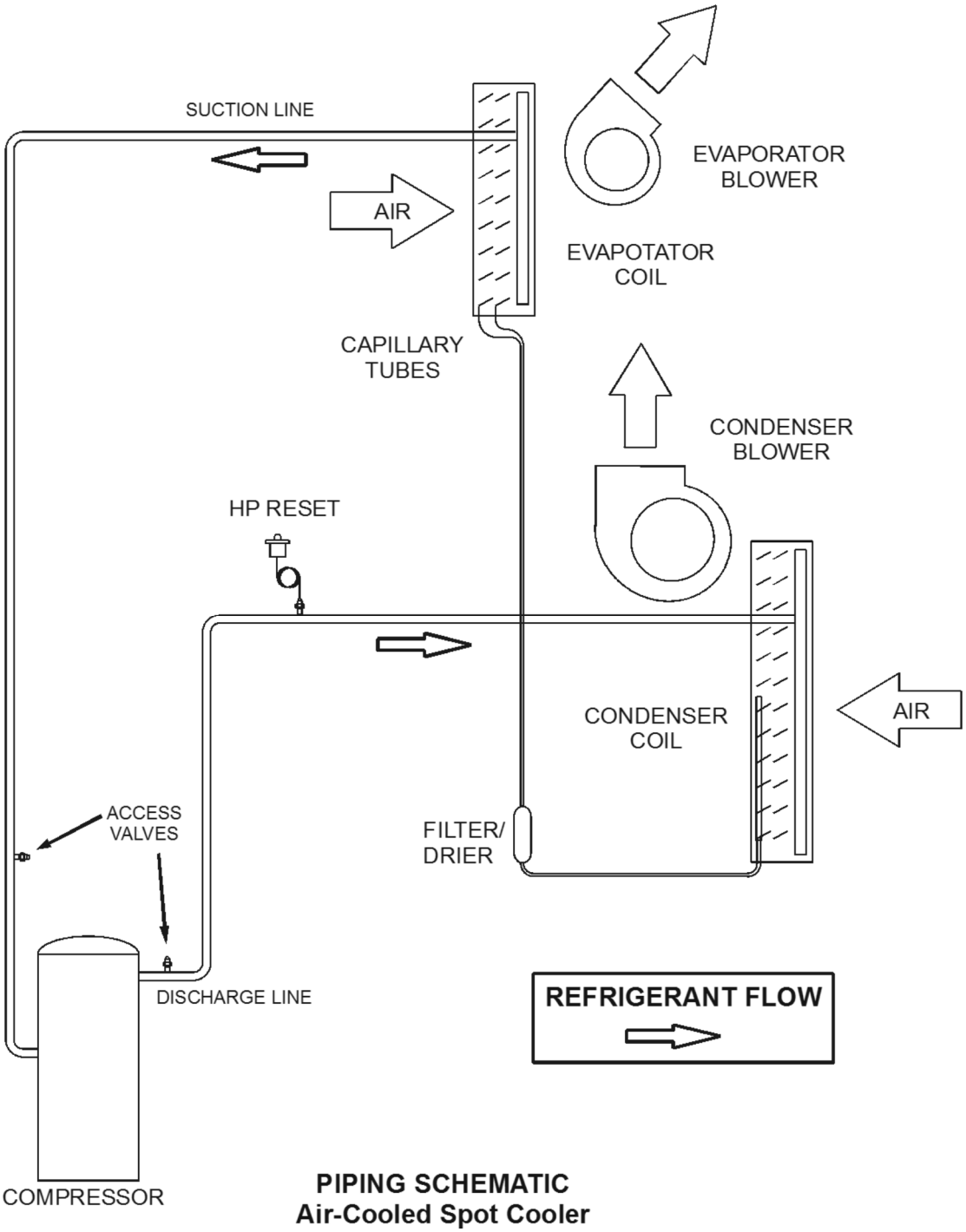
5. Check the inlet and outlet piping. Clean as necessary. Be sure there are no kinks in the lines that would inhibit flow.

GENERAL

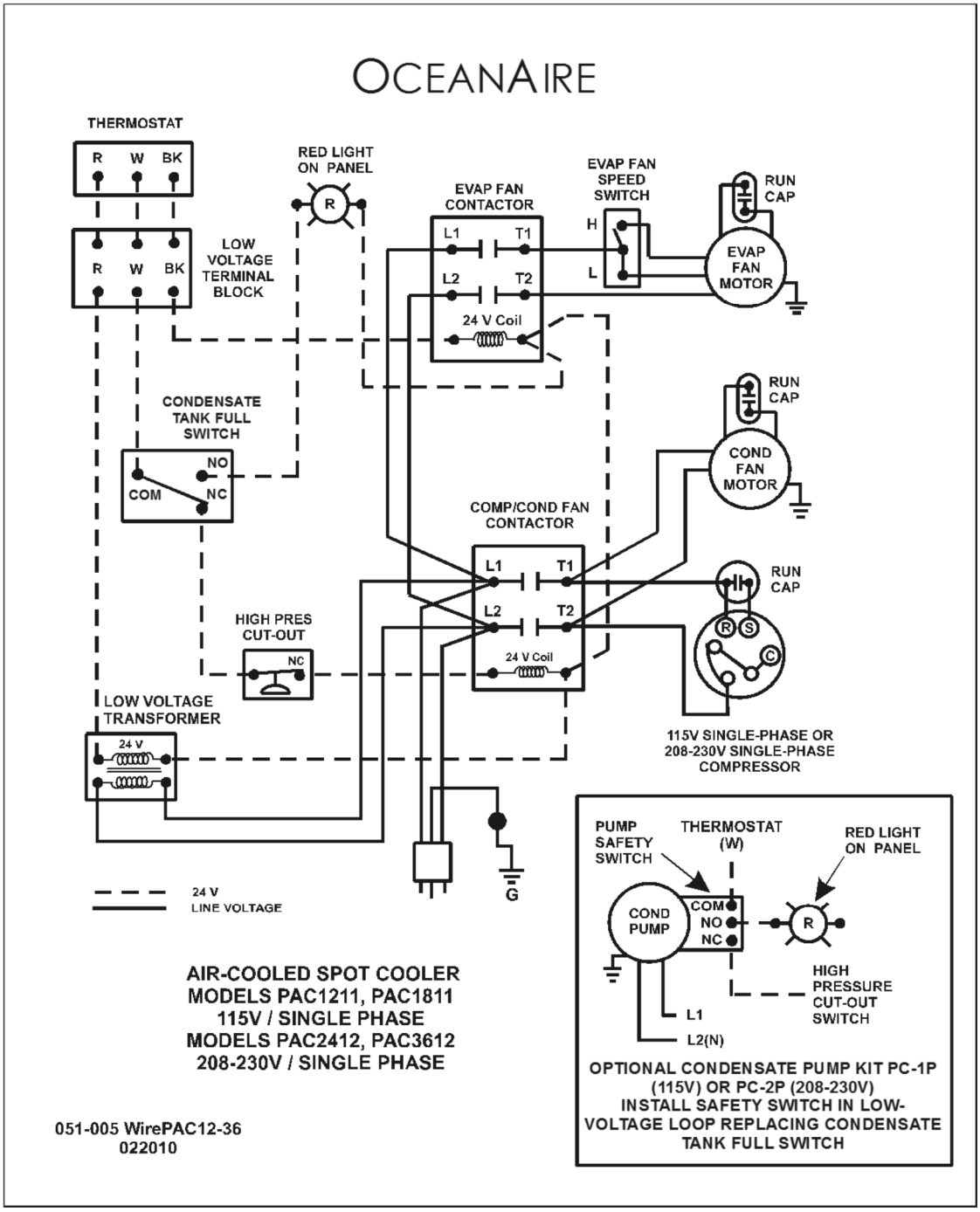
When necessary maintenance steps outlined above are followed, the air conditioner will provide long and reliable service. The refrigeration and electrical circuits of the system should only be serviced by a fully qualified service technician.

PAC INTERIOR





PIPING SCHEMATIC
Air-Cooled Spot Cooler


OCEANAIRE
THERMOSTAT
R W BK
R W BK
LOW VOLTAGE TERMINAL BLOCK
RED LIGHT ON PANEL
R
EVAP FAN CONTACTOR
L1 T1
L2 T2
24 V Coil
EVAP FAN SPEED SWITCH
H
L
RUN CAP
EVAP FAN MOTOR
CONDENSATE TANK FULL SWITCH
NO
COM
NC
RUN CAP
COND FAN MOTOR
COMP/COND FAN CONTACTOR
L1 T1
L2 T2
24 V Coil
RUN CAP
R S C
HIGH PRES CUT-OUT
NC
LOW VOLTAGE TRANSFORMER
24 V
115V SINGLE-PHASE OR 208-230V SINGLE-PHASE COMPRESSOR
G
24 V
LINE VOLTAGE
PUMP SAFETY SWITCH
THERMOSTAT (W)
RED LIGHT ON PANEL
COND PUMP
COM
NO
NC
R
HIGH PRESSURE CUT-OUT SWITCH
L1
L2(N)
OPTIONAL CONDENSATE PUMP KIT PC-1P (115V) OR PC-2P (208-230V)
INSTALL SAFETY SWITCH IN LOW-VOLTAGE LOOP REPLACING CONDENSATE TANK FULL SWITCH
AIR-COOLED SPOT COOLER
MODELS PAC1211, PAC1811
115V / SINGLE PHASE
MODELS PAC2412, PAC3612
208-230V / SINGLE PHASE
051-005 WirePAC12-36
022010

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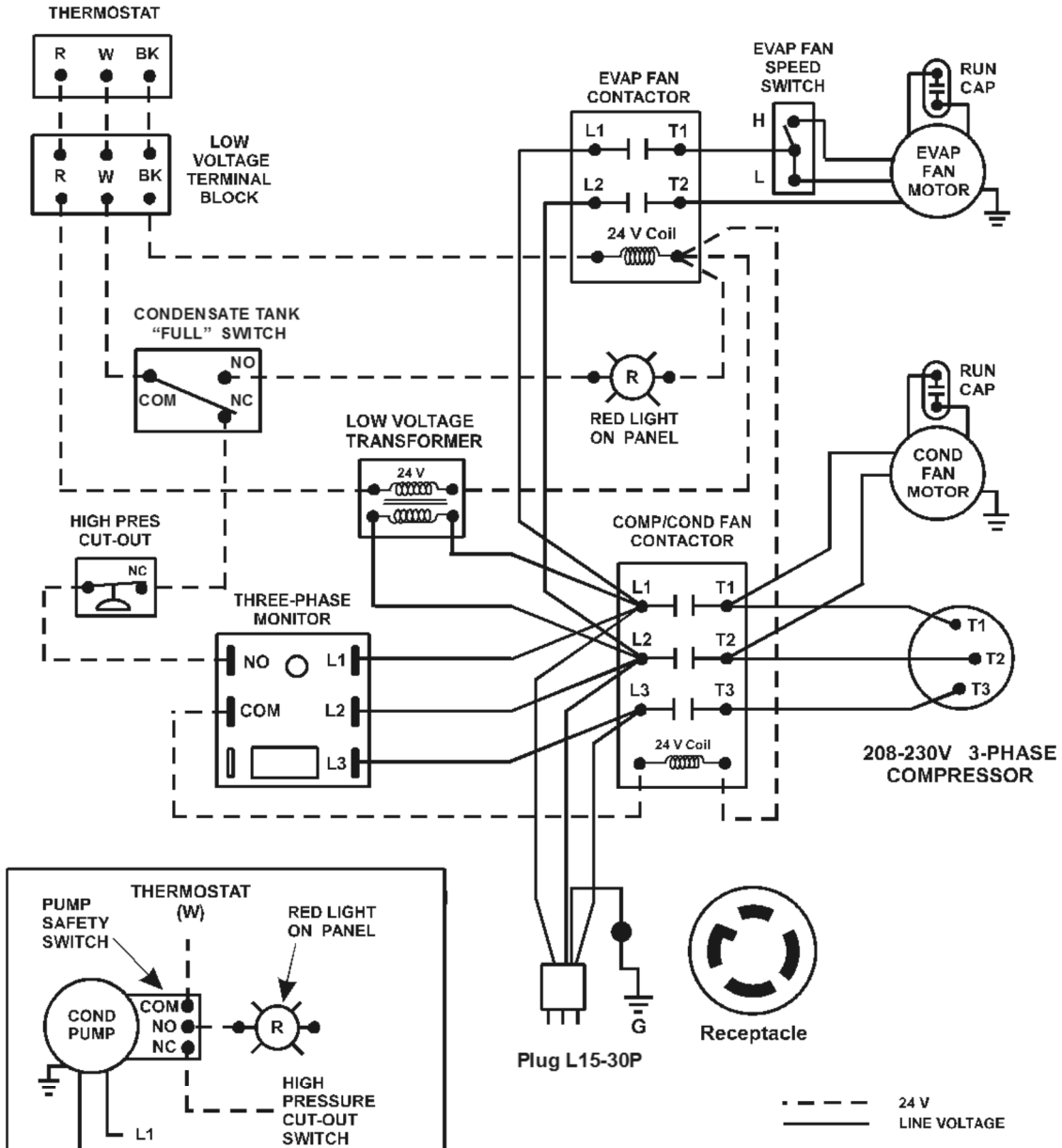
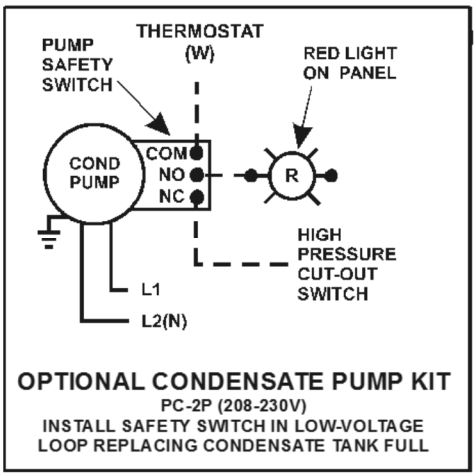
www.oceanaire-inc.com



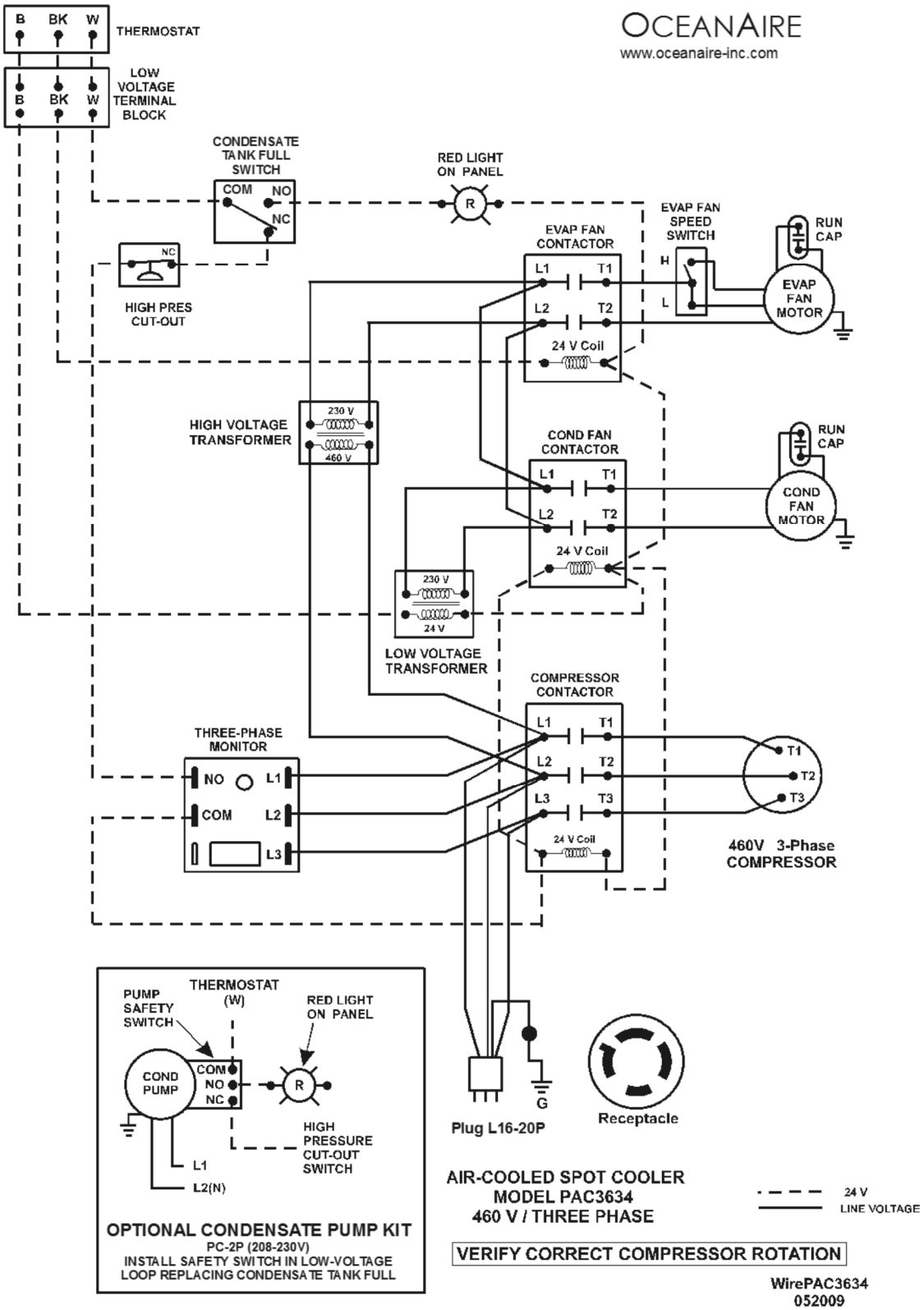


OPTIONAL CONDENSATE PUMP KIT
PC-2P (208-230V)
INSTALL SAFETY SWITCH IN LOW-VOLTAGE LOOP REPLACING CONDENSATE TANK FULL

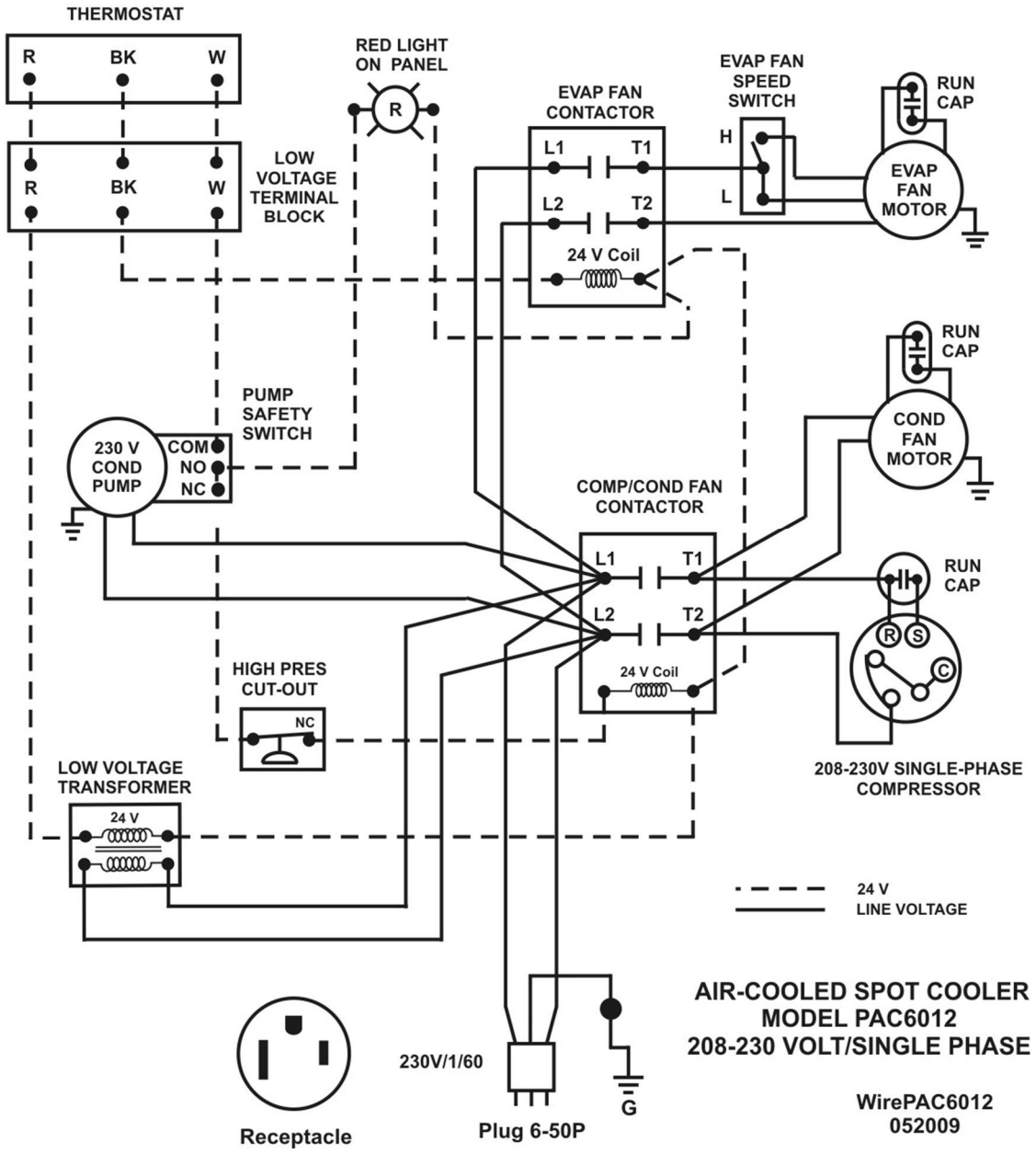
AIR-COOLED SPOT COOLER
MODELS PAC3632
208-230 V / THREE PHASE

VERIFY CORRECT COMPRESSOR ROTATION

WirePAC3632
052009


OCEANAIRE
www.oceanaire-inc.com
B BK W
THERMOSTAT
LOW VOLTAGE TERMINAL BLOCK
CONDENSATE TANK FULL SWITCH
COM NO NC
HIGH PRES CUT-OUT
RED LIGHT ON PANEL
EVAP FAN CONTACTOR
EVAP FAN SPEED SWITCH
RUN CAP
EVAP FAN MOTOR
HIGH VOLTAGE TRANSFORMER
230 V
460 V
COND FAN CONTACTOR
COND FAN MOTOR
24 V Coil
LOW VOLTAGE TRANSFORMER
24 V
COMPRESSOR CONTACTOR
THREE-PHASE MONITOR
460V 3-Phase COMPRESSOR
Plug L16-20P
Receptacle
PUMP SAFETY SWITCH
COND PUMP
HIGH PRESSURE CUT-OUT SWITCH
L1
L2(N)
OPTIONAL CONDENSATE PUMP KIT
PC-2P (208-230V)
INSTALL SAFETY SWITCH IN LOW-VOLTAGE LOOP REPLACING CONDENSATE TANK FULL
AIR-COOLED SPOT COOLER
MODEL PAC3634
460 V / THREE PHASE
24 V
LINE VOLTAGE
VERIFY CORRECT COMPRESSOR ROTATION
WirePAC3634
052009

OCEANAIRE


THERMOSTAT
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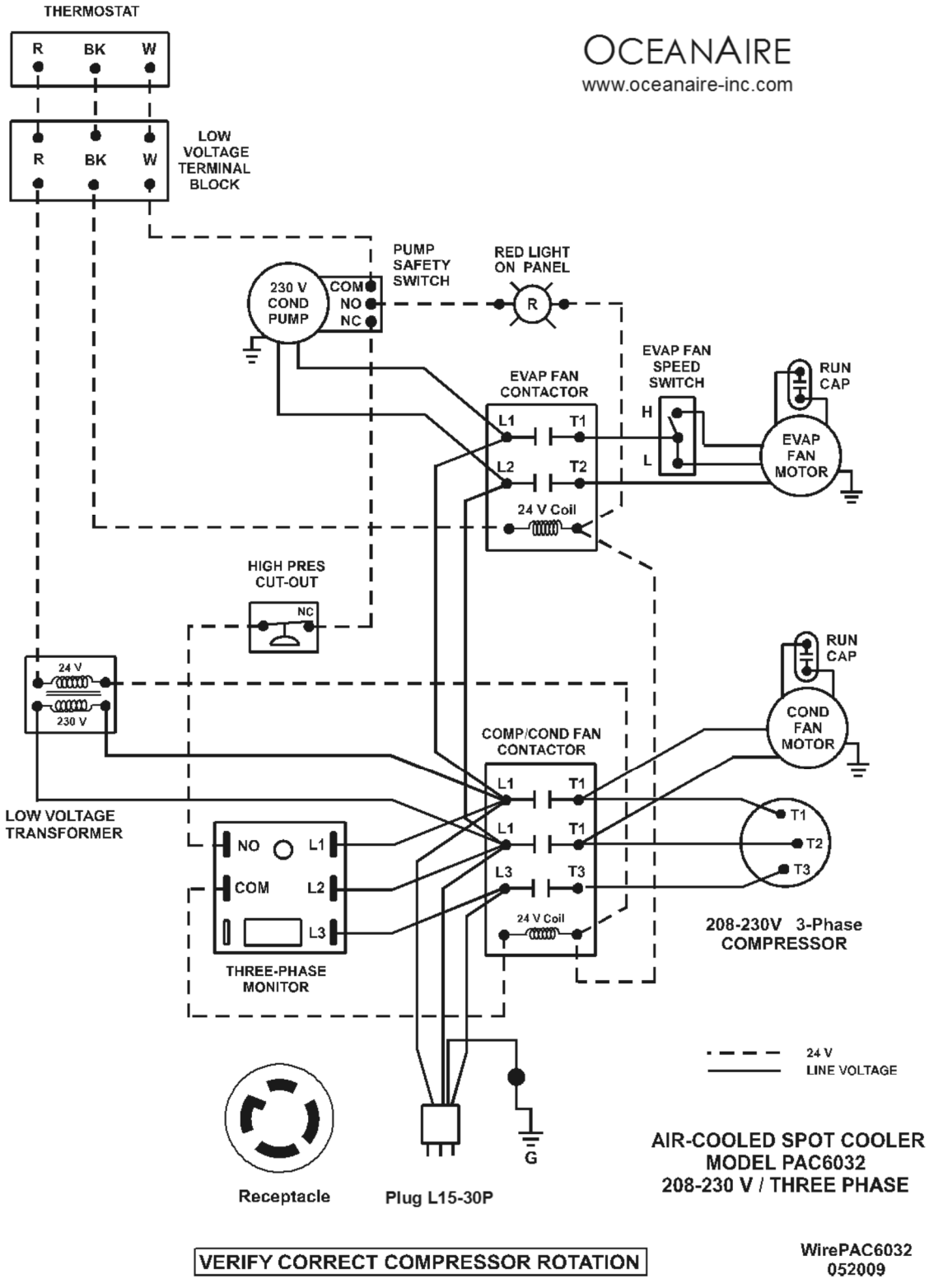
BK
W
R
BK
W
LOW VOLTAGE TERMINAL BLOCK
RED LIGHT ON PANEL
R
EVAP FAN CONTACTOR
L1
T1
L2
T2
24 V Coil
EVAP FAN SPEED SWITCH
H
L
RUN CAP
EVAP FAN MOTOR
RUN CAP
COND FAN MOTOR
PUMP SAFETY SWITCH
230 V COND PUMP
COM
NO
NC
COMP/COND FAN CONTACTOR
L1
T1
L2
T2
24 V Coil
RUN CAP
R
S
C
HIGH PRES CUT-OUT
NC
LOW VOLTAGE TRANSFORMER
24 V
208-230V SINGLE-PHASE COMPRESSOR
24 V
LINE VOLTAGE
Receptacle
230V/1/60
Plug 6-50P
G
AIR-COOLED SPOT COOLER
MODEL PAC6012
208-230 VOLT/SINGLE PHASE
WirePAC6012
052009


THERMOSTAT
R
BK
W
LOW VOLTAGE TERMINAL BLOCK
OCEANAIRE
www.oceanaire-inc.com
PUMP SAFETY SWITCH
230 V COND PUMP
COM
NO
NC
RED LIGHT ON PANEL
R
EVAP FAN SPEED SWITCH
H
L
RUN CAP
EVAP FAN MOTOR
EVAP FAN CONTACTOR
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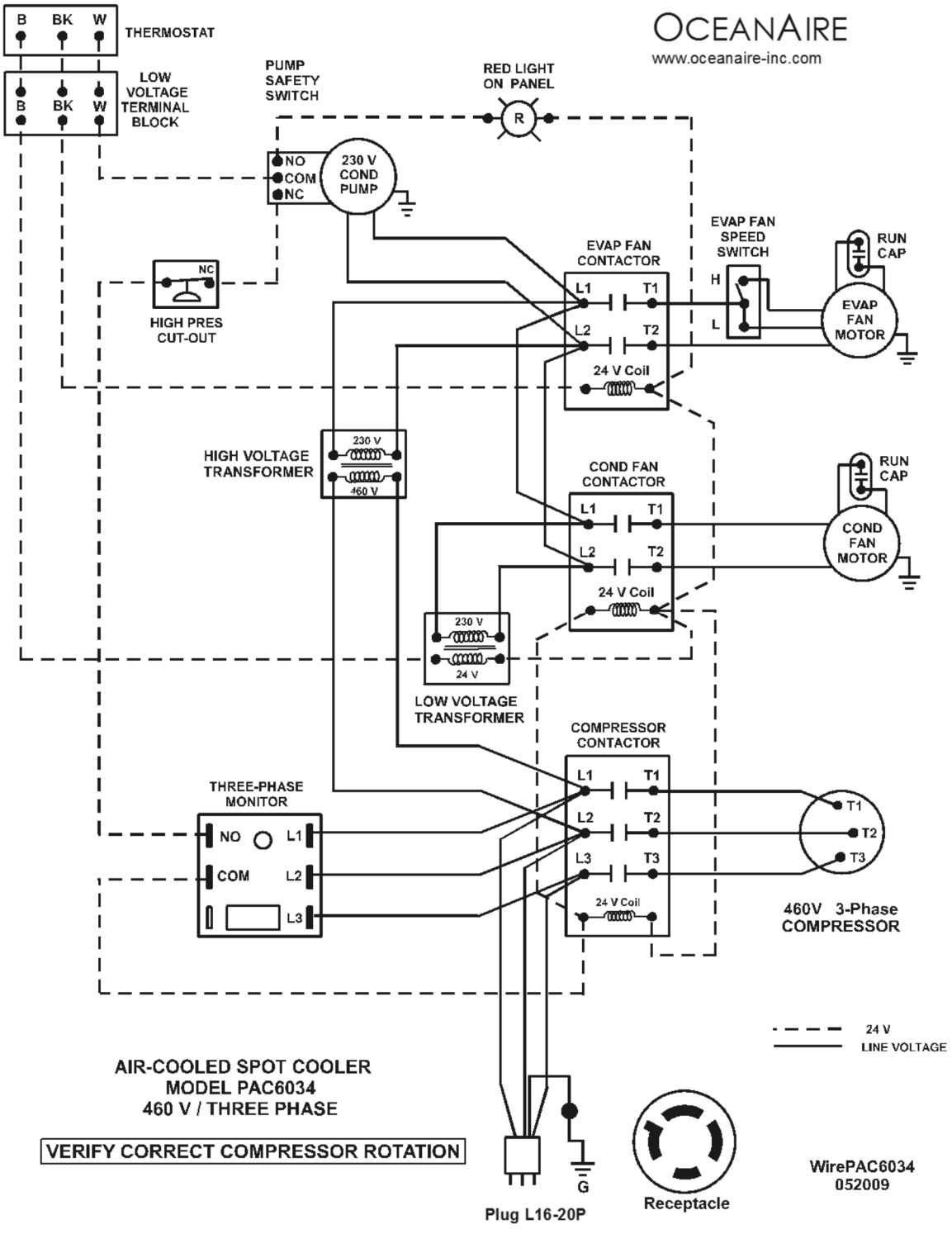
T1
L2
T2
24 V Coil
HIGH PRES CUT-OUT
NC
24 V
230 V
LOW VOLTAGE TRANSFORMER
COMP/COND FAN CONTACTOR
L1
T1
L1
T1
L3
T3
24 V Coil
RUN CAP
COND FAN MOTOR
T1
T2
T3
208-230V 3-Phase COMPRESSOR
NO
L1
COM
L2
L3
THREE-PHASE MONITOR
24 V
LINE VOLTAGE
G
Receptacle
Plug L15-30P
AIR-COOLED SPOT COOLER
MODEL PAC6032
208-230 V / THREE PHASE
VERIFY CORRECT COMPRESSOR ROTATION
WirePAC6032
052009


OCEANAIRE
www.oceanaire-inc.com
B BK W
THERMOSTAT
LOW VOLTAGE TERMINAL BLOCK
B BK W
PUMP SAFETY SWITCH
NO COM NC
230 V COND PUMP
RED LIGHT ON PANEL
R
NC
HIGH PRES CUT-OUT
EVAP FAN CONTACTOR
L1 T1
L2 T2
24 V Coil
EVAP FAN SPEED SWITCH
H
L
RUN CAP
EVAP FAN MOTOR
HIGH VOLTAGE TRANSFORMER
230 V
460 V
COND FAN CONTACTOR
L1 T1
L2 T2
24 V Coil
RUN CAP
COND FAN MOTOR
230 V
24 V
LOW VOLTAGE TRANSFORMER
COMPRESSOR CONTACTOR
L1 T1
L2 T2
L3 T3
24 V Coil
THREE-PHASE MONITOR
NO L1
COM L2
L3
T1
T2
T3
460V 3-Phase COMPRESSOR
24 V
LINE VOLTAGE
AIR-COOLED SPOT COOLER
MODEL PAC6034
460 V / THREE PHASE
VERIFY CORRECT COMPRESSOR ROTATION
G
Plug L16-20P
Receptacle
WirePAC6034
052009

USE OF EXTENSION CORDS

CAUTION:

FOR MODEL PAC1211 *AN EXTENSION CORD CAN BE USED PROVIDED IT IS RATED AT LEAST 15 AMPS @ 115 VOLTS WITH GROUNDING-TYPE ATTACHMENT PLUG AND GROUNDING TYPE CONNECTOR (LOAD FITTING)*

FOR MODEL PAC1811 *AN EXTENSION CORD CAN BE USED PROVIDED IT IS RATED AT LEAST 20 AMPS @ 115 VOLTS WITH GROUNDING-TYPE ATTACHMENT PLUG AND GROUNDING TYPE CONNECTOR (LOAD FITTING)*

FOR MODEL PAC2412 *AN EXTENSION CORD CAN BE USED PROVIDED IT IS RATED AT LEAST 20 AMPS @ 250 VOLTS WITH GROUNDING-TYPE ATTACHMENT PLUG AND GROUNDING TYPE CONNECTOR (LOAD FITTING)*

FOR MODEL PAC3612 *AN EXTENSION CORD CAN BE USED PROVIDED IT IS RATED AT LEAST 30 AMPS @ 250 VOLTS WITH GROUNDING-TYPE ATTACHMENT PLUG AND GROUNDING TYPE CONNECTOR (LOAD FITTING)*

FOR MODEL PAC6012 *AN EXTENSION CORD CAN BE USED PROVIDED IT IS RATED AT LEAST 50 AMPS @ 250 VOLTS WITH GROUNDING-TYPE ATTACHMENT PLUG AND GROUNDING TYPE CONNECTOR (LOAD FITTING)*

FOR MODELS PAC3632 AND PAC6032 *AN EXTENSION CORD MAY BEUSED PROVIDED IT IS RATED AT LEAST 30 AMPS @ 250 VOLTS, 3 PHASE*

FOR MODELS PAC3634 AND PAC6034 *AN EXTENSION CORD CAN BE USED PROVIDED IT IS RATED AT LEAST 20 AMPS @ 600 VOLTS, 3 PHASE*

SPECIAL NOTICE—THREE PHASE OPERATION

Models PAC3632, PAC3634, PAC6032 and PAC6034

All three-phase PAC models are equipped with a three-phase monitor for added compressor protection. The phase monitor, located in the control box, has multi-color LED that reports status. The monitor protects the compressor from reverse operation, phase loss and low voltage situations. Further description of the three-phase monitor is located in the electrical section of the manual.

NOTICE - DO NOT OPERATE ANY THREE-PHASE UNIT BY BY-PASSING THE MONITOR, THIS WILL VOID THE WARRANTY

Three Phase Monitor

Three-Phase units can be equipped with monitors for motor protection. The Oceanaire Three-phase Monitor safeguards the unit against incorrect compressor rotation, low-voltage and/or loss of power in any one of the power legs. The monitor is installed in the control box and is equipped with an LED for diagnosis of an improper electrical condition (see diagrams below). When power is connected, the thermostat WILL NOT power up until the monitor start delay has been timed out. If the thermostat does not power up, an electrical condition may need to be addressed. Remove the control box cover and check the observe the LED on the phase monitor. The LED signals the following:

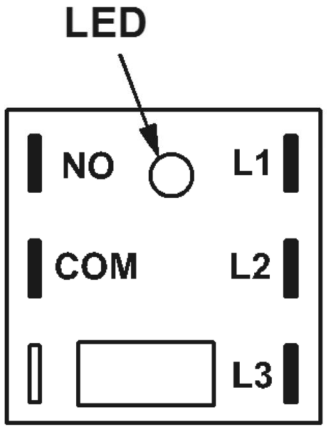
GREEN-BLINKING - Start delay, 120 sec.

GREEN - Proper Operation

RED/GREEN-BLINKING - signals reverse phase rotation. Switch any two of the power leads for the unit, NOT THE MONITOR LEADS, and re-start.

RED-BLINKING - signals improper voltage and/or phase loss. Correct the power problem, then re-start the unit.

In the event of a power interruption, the unit will re-set to a start-up condition. The Phase Monitor will not allow the unit to start until power is corrected.



THREE-PHASE MONITOR

NOTICE

UNIT IS EQUIPPED WITH 3-PHASE POWER MONITOR (WITH LED)

LED INDICATION
GREEN (BLINKING) = START DELAY
GREEN = PROPER OPERATION
RED/GREEN (BLINKING) = PHASE REVERSAL
RED (BLINKING) = IMPROPER LEG VOLTAGE OR PHASE LOSS

START DELAY = 120 SECONDS

CONTROL BOX LABEL

MANUFACTURER'S LIMITED WARRANTY

The Manufacturer (OceanAire, Inc.) warrants to the original owner that the Product will be free from defects in material or workmanship for a period not to exceed one (1) year from date of installation. If upon examination by the Manufacturer the Product is shown to have a defect in material or workmanship, during the warranty period, the manufacturer will repair or replace, at its option, that part of the Product which is shown to be defective.

The Manufacturer further warrants that the product's compressor-motor will be free from defects in materials and workmanship for five (5) years from the date of installation. If upon examination by the Manufacturer, the Compressor-Motor is shown to have a defect in materials or workmanship during the warranty period, the Manufacturer will repair or replace, at its option, that compressor which is shown to be defective. Electrical parts (such as relays, overloads, capacitors, etc.) and the sealed refrigeration system (condenser and evaporator) are included in the one year limited warranty, but not with the five year limited warranty of the compressor. This limited warranty does not apply:

a) if the Product has been subjected to misuse or neglect, has been accidentally or intentionally damaged, has not been installed, maintained or operated in accordance with the furnished written instructions, or has been altered or modified in any way.

b) to any expenses, including labor or material, incurred during removal or reinstallation of the Product.

c) to any workmanship of the installer of the Product.This limited warranty is conditional upon:

(i) shipment, to the Manufacturer, of that part of the Product thought to be defective. Goods can only be returned with prior written approval from the Manufacturer. All returns must be freight prepaid.

(ii) determination, in the reasonable opinion of the Manufacturer that there exists a defect in material or workmanship.

Repair or replacement of any part under this Limited Warranty shall not extend the duration of the warranty with respect to such repaired or replaced part beyond the stated warranty period.

THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, AND ALL SUCH OTHER WARRANTIES, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED AND EXCLUDED FROM THIS LIMITED WARRANTY. IN NO EVENT SHALL THE MANUFACTURER BE LIABLE IN ANY WAY FOR ANY CONSEQUENTIAL, SPECIAL, OR INCIDENTAL DAMAGES OF ANY NATURE WHATSOEVER, OR FOR ANY AMOUNTS IN EXCESS OF THE SELLING PRICE OF THE PRODUCT OR ANY PARTS THEREOF FOUND TO BE DEFECTIVE. THIS LIMITED WARRANTY GIVES THE ORIGINAL OWNER OF THE PRODUCT SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY BY EACH JURISDICTION.

USEFUL INFORMATION

MODEL: _____

SERIAL NUMBER: _____

DATE PURCHASED: _____

INSTALLED BY: _____

DATE INSTALLED: _____

For Technical Support, or to locate a distributor for service parts, contact Oceanaire at (847) 583-0311 or 1-866-GETAIRE (438-2473). Please indicate the Model Number and Serial Number of the unit to assure proper information and service parts.

OCEANAIRE
6228 Oakton Street Morton Grove, IL. 60053
1-866-GET-AIRE (438-2473) Phone: (847) 583-0311 Fax: (847) 583-0312
web-site: www.oceanaire-inc.com e-mail: sales@oceanaire-inc.com

Form EISM-PAC, 110114 Rev 1